Fugitive Dust Control Plan Sevier Dry Lake Exploratory Testing

Millard County Utah

Operator(s):

Peak Minerals, Inc.
2150 South 1300 East, Suite 350
Salt Lake City, UT 84106
Phone (801) 485-0223

FDCP Contact(s):

CH2MHILL

Jared Carling
215 S. State St. Suite 1000
Salt Lake City, UT 84111
Office: (801) 350-5203

FDCP Preparation Date:
10/20/2011

Contents

Appendices

1.0 Source Information

This section provides site location, contact information, a description of the exploratory activities, and a summary of fugitive dust sources.

1.1 Project/Site Information

Peak Minerals, Inc. (Peak) is proposing to conduct exploratory testing of the potash brine resource in Sevier Dry Lake in Millard County, Utah. This Fugitive Dust Control Plan (FDCP) has been prepared to mitigate windblown dust from Peak's exploration program (the Project). The Project entails drilling a series of wells throughout the dry lakebed, conducting geotechnical analysis using test pits and cone penetration testing, and installing hydrologic monitoring wells around Sevier Dry Lake. The exploratory program is being conducted to accurately characterize the potash resource and analyze groundwater hydrology.

1.2 Contact Information/Responsible Parties

Operator(s):
Peak Mineral Inc.
2150 South 1300 East, Suite 350
Salt Lake City, UT 84121
(801) 485-0223 Phone

FDCP Contact(s):
CH2M HILL Inc.
Jared Carling
215 S. State St. Suite 1000
Salt Lake City, Utah 84111
Office: (801) 350-5203

This FDCP was prepared by:
CH2M HILL Inc.
Jared Carling
215 S. State St. Suite 1000
Office: (801) 350-5203

Subcontractor(s):
TBD. The FDCP will be updated when determined. All subcontractors will be required to comply with the FDCP.

Emergency 24-Hour Contact:
Peak Minerals
Rick Dye, Project Manager
801-707-6181 (cell)

CH2M HILL Engineers, Inc.
Jared Carling, Environmental Engineer
801-518-3349 (cell)

1.3 Nature and Sequence of Exploratory Activity

Peak proposes three activities as part of the exploratory phase of development: Confirmation of Brine Resource, Hydrology Analysis, and Screening-Level Geotechnical Study.

Peak will conduct brine resource confirmation sampling to develop a better understanding of the distribution of dissolved salts in groundwater occurring within the Sevier Lake potassium lease. Brine resource sampling will verify the economic viability of potential commercial production of marketable mineral products at Sevier Lake.

Peak has applied to collect baseline hydrologic data for future use in evaluating potential hydrologic impacts that could result from brine removal and freshwater extraction for Project operations. The hydrologic investigations will evaluate groundwater and surface water resources to establish baseline conditions prior to the extraction of brine. These baseline data will be used for BLM's NEPA analysis that would be required should a commercial minerals extraction project be proposed for development.

Peak will conduct a screening-level geotechnical study to assess the conceptual design and feasibility of structures that would be built to support the operation of a potash facility. This information will contribute to determining the feasibility of developing a commercial project.

1.4 Sources of Fugitive Dust

The primary source of fugitive dust at the Project site will be windblown dust from disturbed areas outside of the lakebed. Outside of the lakebed, sources would include activities supporting well drilling and vehicles traveling unpaved roads. On the lakebed, fugitive dust will generally be limited to surface dust along dry travel ways; the lakebed surface is often wetted, so normally would not be a source of dust production.

2.0 Fugitive Dust Emission Activities

Subsurface drilling, exposed fine soils, and driving along unpaved roads and shallow tracks are known to increase windblown fugitive dust beyond natural conditions by disturbing the vegetation, soil surface stability, and entraining particles in the air available to be carried by wind. The native soil is characterized as fine sandy loam and may contain as much as 30 percent fines (silt and clay). Each activity contributing to fugitive dust emissions is described below.

2.1 Exploratory Drilling

Drilling will take place both on and off the lake surface and will increase the wind erosion potential of the disturbed areas. The majority of earthwork will be completed within the first

year of exploratory operations and the drill sites will be reclaimed to natural conditions following the study. The primary equipment used for this activity will be drilling rigs.

2.2 Disturbed Areas

Outside of the lakebed, disturbance activities will consist of staging areas located at various points around the lake to support the on-lake drilling activities, hydrology drill sites, and travel on existing roads. On the lake, disturbance activities will primarily be the travelways between the drill sites. Within the lakebed the water table is generally within a few feet of the surface; therefore all subsurface activities take place in a wet environment. These include drilling, trenching and other geotechnical activities. Drill cuttings exit the wells with inherent soil moisture into a hopper and will be stored immediately next to the drill pad. Wind erosion is possible once the cuttings dry out.

2.3 Unpaved Roads and Shallow Tracks

Vehicle access on and around the Project location can generate fugitive dust emissions. Equipment moving supplies and materials throughout the site can also contribute to fugitive dust emissions. Equipment associated with these emissions includes trucks, tractors, drill rigs, and all terrain vehicles.

3.0 Onsite Fugitive Dust Controls

Pursuant to Utah Administrative Code R307-309-3, control strategies must be designed to meet 20% opacity or less onsite and control strategies must prevent exceeding 10% opacity from fugitive dust at the property boundary. Leasing EA Stipulation 15 requires plans for (1) the treatment of road and disturbed surfaces, (2) speed limits to control dust, (3) stabilizing piles, and (4) conditions under which work will cease, such as operations during high wind conditions. To achieve these opacity limits and the Leasing EA Stipulation 15, project personnel will utilize fugitive dust mitigation techniques primarily focused on minimizing the amount of disturbed areas to avoid the need for treatment, stabilizing drill cuttings if necessary, reducing vehicle speed below the dust entrainment threshold for the project location, ceasing operations during high wind episodes, and reclaiming disturbed area once access is no longer needed.

3.1 Limiting the Areas of Disturbance

Access to unneeded areas of the site will be restricted and therefore leave the majority of the Project location undisturbed. The disturbed areas of the site will be limited to what is essential to conduct the exploratory drilling and testing in a timely and organized manner.

3.2 Drill Cuttings

Drill cuttings will be spread out so that the soil does not protrude more than 8 inches above the lake bed. This will minimize wind erosion, and will also accelerate the cuttings being

incorporated back into the lake playa surface due to precipitation on the cuttings and the ponding of water on the lake bed.

3.3 Speed Limit

Vehicle speed onsite will be limited to 30 mph to reduce the potential of dust entrainment from vehicle tires. Speed limit signs will be posted at the site entrance, clearly indicating the speed limit to remind personnel of the importance to reduce speed. In the event that vehicle traffic causes visible emissions, speed will need to be reduced to a level that does not cause excessive dust to be entrained in the air.

3.4 High Wind Events

Operations that may cause significant increase in windblown emissions during high wind events such as vehicle traffic will not take place on days where dust storms are forecasted for the region to prevent the Project from contributing to impaired air quality in the region.

3.5 Site Reclamation

Upon completion of each well on the lake bed, the site will be reclaimed by spreading the cutting pile evenly over the surface of the adjacent area to a maximum height of 8 inches. At each of the hydrologic wells, the area will be seeded after the work is completed and in order to minimize the potential for wind erosion at the site after establishment of new vegetation. The largest of the hydrology wells will take approximately 20 days to complete and disturb a maximum of 1/2 acre after the cuttings are spread and the area is seeded.

4.0 Off-Site Fugitive Dust Controls

Although the majority of fugitive dust emissions from the Project will occur within the Project boundaries, the potential exists for dust emissions to occur from activities offsite that are directly related to the Project. These activities include traveling to and from the site on existing unpaved roads. To mitigate the potential for these emissions, vehicles will reduce traveling speed on these access roads to reduce dust creation. Travel to and from the site will be limited to short time periods during early morning and late afternoon and not throughout the day.

5.0 Inspections and Compliance Monitoring

The Site Supervisor is responsible for ensuring compliance with this Fugitive Dust Control Plan.

5.1 Internal Inspections

Throughout exploration, field activities will be observed to verify that the work follows the requirements in the Fugitive Dust Control Plan. The Site Supervisor will conduct daily inspections of the site and instruct personnel to reduce fugitive dust as needed.

EPA Method 9 certified personnel will perform quarterly opacity readings using EPA Method 9 or EPA Method 203C. Documentation of all opacity observations will be kept onsite and made available upon request to the executive secretary of the Utah Division of Air Quality. If at any time the opacity within the site or at the site boundary exceeds the allowable limit, a report will be sent to the executive secretary within 15 days of the violation. Copies of all the forms needed to document compliance with the Fugitive Dust Control Plan are provided in Appendices A and B.

6.0 Training

Air and fugitive emission control environmental awareness training will be included in the contractor awareness training to assist workers in recognizing fugitive dust emission issues that may affect the project. The Site Supervisor will provide information to be covered in the training program, as well as ensure that staff are trained to comply with this Fugitive Dust Control Plan.

All personnel at the Project will be informed of the FDCPs necessity and trained to implement the mitigation techniques as needed. Ongoing training and compliance issues will be presented in periodic health, security, safety, and environment (HSSE) meetings conducted at the site. In the event that daily dust observations show opacity near allowable limits, personnel will be retrained on how to comply with the FDCP during the HSSE meetings.

APPENDIX A

Fugitive Dust Control Plan Violation Report

Fugitive Dust Control Plan Violation Report

When a source is found in violation of R307-309-3 or in violation of the Fugitive Dust Control Plan, the source shall submit a report to the Executive Secretary within 15 days after receiving a notice of violation. The report shall include the following information:

1. Name and address of dust source;
2. Time and duration of dust episode;
3. Meteorological conditions during the dust episode;
4. Total number and type of fugitive dust activities and dust producing equipment within each operation boundary. If no change has occurred from the existing dust control plan, the source should state that activities/equipment are the same;
5. Fugitive dust activities or dust producing equipment that caused a violation of R-307-309-3 or the source's dust control plan;
6. Reasons for failing to control dust from the dust generating activity or equipment;
7. New and/or additional fugitive dust control strategies necessary to achieve compliance with R307-309-3, 4,5,6, or 7;
8. If it cannot be demonstrated that the current, approved fugitive dust control plan will result in compliance with R307 -309-3 through 7, the plan must be revised so as to demonstrate compliance with 307-309-3 through 7. Within 30 days of receiving a fugitive dust notice of violation, the source shall submit the revised plan to Executive Secretary for review and approval;

SUBMIT THE FUGITIVE DUST CONTROL PLAN AND VIOLATION REPORT TO:

Phone: 801-536-4000
Fax: 801-536-4099
Executive Secretary
Utah Division of Air Quality
POB 144820
150 North 1950 West
Salt Lake City, Utah 84114-4820

APPENDIX B

EPA Method 9 Observation Form

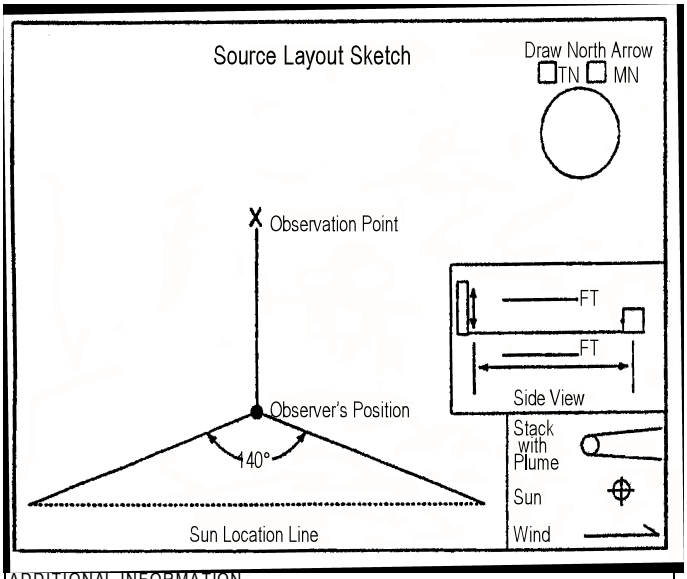
EPA METHOD 9 (40 CFR 60 - Appendix A)
VISIBLE EMISSION OBSERVATION FORM

COMPANY NAME		
LOCATION		
LOCATION		
CITY	STATE	ZIP
PROCESS EQUIPMENT		OPERATING MODE
CONTROL EQUIPMENT		OPERATING MODE

DESCRIBE EMISSION POINT	
HEIGHT OF EMISSION POINT	HEIGHT OF EMISSION POINT RELATIVE TO OBSERVER START END
DISTANCE TO EMISSION POINT START END	DIRECTION TO EMISSION PT. (DEGREES (0-360)) START END
VERTICAL ANGLE TO OBSERVATION POINT START END	DIRECTION TO OBSERVATION POINT (DEGREES (0-360)) START END
DISTANCE & DIRECTION TO OBSERVATION POINT FROM EMISSION POINT START END	

DESCRIBE EMISSIONS START END	
EMISSION COLOR START END	WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐ NONE ☐

DESCRIBE PLUME BACKGROUND START END	
BACKGROUND COLOR START END	SKY CONDITIONS START END
WIND SPEED START END	WIND DIRECTION START END
AMBIENT TEMP START END	WET BULB TEMP RH percent



ADDITIONAL INFORMATION

OBSERVATION DATE	START TIME	END TIME

SEC / MIN	0	15	30	45	COMMENTS
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

OBSERVER'S NAME (PRINT)	
OBSERVER'S SIGNATURE	DATE
ORGANIZATION	
CERTIFIED BY	DATE